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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,605	09/21/2006	Geoffrey Mark Condick	4623-062133	1664

28289 7590 10/27/2010
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EXAMINER

PAIK, SANG YEOP

ART UNIT	PAPER NUMBER
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3742

MAIL DATE	DELIVERY MODE
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10/27/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,605	Applicant(s) CONDICK, GEOFFREY MARK	
	Examiner SANG Y. PAIK	Art Unit 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/27/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 14, the term "normal" is a term of a relative degree which renders the scope of the claims vague and indefinite.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 6, 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrell et al (US 5,383,019) in view of Ukon et al (US 2002/0071117), and Krupa et al (US 5,642,190) or Shiller (US 3,692,415)

Farrell shows the spectrometer and its control method claimed including a detector for detecting a signal from a plasma sample from an inductively coupled plasma torch, a lens, and a control section including a computer with a software for receiving a signal from the detector and a RF power generator for powering the

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induction coils to generate the plasma torch. But, Farrell does not explicitly show that the detector is for detecting a change in the plasma from a normal plasma to a toroidal plasma created in a tube of the spectrometer.

Ukon shows that it is known to provide a plasma spectrometer with an optical detector for detecting the plasma status including plasma shape which is analyzed by the light generated by the plasma, and Ukon teaches that the plasma status dictates or influences the analytical performances of the plasma torch. Ukon further shows a computer along with a video camera for monitoring the plasma status, including the plasma intensity, image and position.

Krupa or Shiller shows that it is known in the art that a plasma is created in a tube for allowing a spectroscopic or photometric analysis. Krupa and Shiller also shows that it is well known to use an optical fiber for transmitting light to the analysis device.

In view of Ukon, it would have been obvious to one of ordinary skill in the art to adapt Farrell with the spectrometer for detecting varying degrees of the light generated by the plasma to determine the plasma status to further control the operating conditions or performances of the plasma torch to either shut down or power up the plasma generator depending on the detected plasma status, including the changing status from a normal plasma shape to any other shape, including the toroidal shape, to establish a desired torch condition. And, in view of Krupa or Shiller, it would have been obvious to one of ordinary skill in the art to adapt Farrell with the plasma created in a tube which is well known in the art, and it would also have been obvious use an optical fiber, which is

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also well known in the art, for conducting or transmitting light to the plasma analysis detector.

5. Claims 5, 7, 8, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrell in view of Ukon, Krupa, and Shiller, as applied to claims 1-4, 6, 9 and 14 above, and further in view of Ni et al (US 6,526,355).

Farrell in view of Ukon, Krupa, and Shiller, shows the structure claimed except for a photodiode.

Ni shows that it is known in the art that a plasma spectrometer is a photodiode array or a one or two dimensional CCD array.

In view of Ni, it would have been obvious to one of ordinary skill in the art to adapt Farrell, as modified by Ukon, Krupa, and Shiller, with the optical detector in the form of a pixel photodiode array or any other suitable array, to more accurately and effectively measure the light generated by the plasma.

6. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrell in view of Ukon, Krupa, and Shiller as applied to claims 1-4, 6, 9 and 14 above, and further in view of Tanaka et al (US 2003/0192864).

Farrell in view of Ukon, Krupa, and Shiller shows the structure claimed except for the detector for measuring the impedance value of the plasma.

Tanaka shows that it is known to provide a plasma device with an impedance detector for detecting the impedance of the plasma for determining a plasma status.

In view of Tanaka, it would have been obvious to one of ordinary skill in the art to adapt Farrell, as modified by Ukon, Krupa, and Shiller, with the detector for measuring

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an impedance of the plasma by measuring the voltage and current source to also determine the plasma status to further control the plasma torch conditions.

Response to Arguments

7. Applicant's arguments filed 8/20/10 have been fully considered but they are not persuasive.

With respect to Ukon, the applicant argues that Ukon does not show shutting down the plasma if it changes from a normal plasma to a toroidal plasma. It is shown by the applicant's disclosure as reflected in claim 2 that a plasma changes from a normal to a toroidal plasma as the intensity of the plasma light is changed. In Ukon, it is shown than a plasma status with respect to its position, plasma shape, and plasma intensity are also monitored as they are changing (see page 1, para. [0022]). Therefore, since Ukon teaches monitoring the changes in the plasma status including its shape, position, and light intensity, it would have been obvious to one of ordinary skill in the art to adapt Farell with an optical detector including a spectrometer for detecting various plasma shapes which are represented by its position and light intensity to further control the operating conditions including from a normal plasma to any other shapes, including a toroidal shape, to meet a desired torch conditions.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANG Y. PAIK whose telephone number is (571) 272-4783. The examiner can normally be reached on M-F (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571) 272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SANG Y PAIK/

Primary Examiner, Art Unit 3742